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First Biennial Report

OF THE

# STATE FORESTER

TO HIS EXCELLENCY,

EDWIN L. NORRIS,

GOVERNOR OF MONTANA.

FOR THE YEAR

1910

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"INDEPENDENT PUBLISHING COMPANY, HELENA, MONTANA."



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# Report of the State Forester for 1910.

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The Forestry Work, under the direction and control of the State Board of Land Commissioners, which was enacted, Session Laws, 1909, is making slow but satisfactory progress. The foundations are being laid and there is an indication of an awakened public sentiment on this important question.

The forest resources of this State have been but partially examined, due to the lack of time, and no report can be made intelligently without a great deal of field and office work in each one of the Western counties of the State.

Just pride may be taken that Montana, with her sister states, Idaho, Washington, Oregon and California, have over one-half of the standing timber of the United States, and it is hoped that a more definite report can be made in the future of the milling and wood using industries of the State.

## Education and Forestry.

The Forestry and the Forestry Board is recognized as a source of information concerning the forests of the State. Many articles dealing with forests and forest conditions have been answered by letters and question blanks. Likewise, timber owners who have timber to sell are making inquiry as to the available markets. The work and study that has been made enables the Board to be of great help both to the timber producer and timber consumer.

Under the terms of the forest law, the State Forester delivers a course of six lectures annually on forestry at the several educational institutions of the State. This work requires both attention and work to prepare, that as much good as possible, may be done to educate the people in practical as well as technical forestry, that this great resource may be perpetuated for future generations.

There never was a greater need for the dissemination of information through publications and public addresses. The people are ready for it. The Board of Forestry has not the information at hand which should come through the Forester of forest conditions, but through lack of time and appropriations

to carry on this work there can be little done of this kind of work.

### Scope of Study.

The purpose of the field work is, first, to locate and sketch on maps wooded areas of the State. Second, to classify each area into one or more types according to the conditions. Third, by means of numerous sample plots carefully selected to represent the average conditions in each type or class, to determine the stand of timber representative of the tree specie and the size of each type. And fourth, the collection of data to be used in the preparation of a report upon the forest condition of each tract. This data thus secured is compiled in the office and gives for each district the stand of saw-timber by classes, and the average acre constructed from the sample plots represent the exact condition as regards tree specie and size of the trees growing on each forest type. In addition to the mapping, other information is collected in the field. Forest industries are noted and information as to the cut of timber, logs for lumber, cord-wood, piles, piling, railroad ties, mining props, fence posts, shingles, is secured. The kind of timber and average amount consumed for each of the above uses is estimated to determine how much is taken from the forest annually. Prices are secured for timber of the various classes, both as to stumpage and a price for the same delivered at the mill. Transportation facilities and market conditions are investigated. The question of forest management is given special attention. The causes that have produced the present conditions are inquired into. The attitude of timber owners towards forest improvements and management is also obtained, and feasible methods of handling timber to better advantage are worked out.

Destructive forest agencies are given considerable attention, particularly forest fires, destruction and wasteful methods of lumbering and injury from insects and tree disease.

### Practical Value of the Work.

Our forest area is so large and so generally distributed that the average person has an idea that timber is so abundant that there can never be a scarcity. It is only by acquainting the public generally with the actual facts, showing the amount of timber we have, the rate at which it is being used and the present rate of growth of the forests that the increasing scarcity

is sufficiently emphasized; but the advancing prices are inducements to pay more attention to the young growth and to the profit to be derived in timber growing. But advancing prices are evidence of present timber shortage, and if the timber and land owner defers the practice of forest management until higher prices are realized and then has to wait for the slow growth of the timber, he will deprive himself of the increased revenues that will accrue to those who have already made a beginning in the anticipation of a certain increase. A full presentation of facts at the present time cannot fail to exercise a strong influence in helping to avert the serious timber shortage that is not only threatening in many of the Eastern States, but is fast approaching a reality over most of the United States. Wood is indispensable, notwithstanding the substitute for many of its uses. The amount of wood used today is greater than ever before and will increase so long as the supply can be maintained. Here in Montana the lumber industry has only just begun, and it is only a matter of a few brief years when this state will have to give its share of forest products, even to the states that once had the most wonderful forests of white pine in the world.

The question that is before the American people today is a vital question, and hard to answer. How shall we conduct our management to get the best result from our much misused and depleted forests to meet the demand that is becoming more insistent every day. Problems must be worked out by the forester and Forestry Board to give the people of this state a fair understanding of the past and present conditions of the forests, which is one of the largest assets and a part of the backbone of the large educational institutions of the State.

### Forest Fires.

Forest fires continue to be a most serious menace in all forest districts, and Montana is not exempt from this rule. The damage is greatest in the mountain districts where there are large continuous tracts of timber and where there is more carelessness in the matter of fires. Many of the forest mountains have been so repeatedly burned over that fires often are accepted as inevitable happenings of a dry season. These fires destroy and injure the large trees, impoverish the soil and reduce the water conserving capacity of the forest. As long as forest fires are frequent and forest property is unsafe

there is little inducement to practice conservation forest management. The damage in the valley is less than in the mountains, but here also it is a serious problem, especially along the railroads. The valley lands are cut by various water courses, and during almost the entire season it is too wet for fires to make much headway and spread, unless timber slash and debris is left on the ground after a logging season. In the more densely populated forest districts of the valleys, fires are not allowed to go unchecked to the same extent as in the mountains where less effort is made to control them. There were during the past season 265 volunteer fire wardens appointed by this office; 153 qualified and accepted the appointment; most of them were called for duty and did good and effective work. One was disqualified for inefficiency and not being able to manage and see the real need of business methods. For this service they received a compensation of 35 cents per hour from the State for the time actually employed. The common laborer was paid on the basis of 25 cents per hour; horses from 50 cents and upwards to \$1.50 per day; teams, \$5.00 per day. The above prices were including board. The value of the regular fire wardens and volunteer fire wardens, the State militia as well as the regular army, has been repeatedly demonstrated in suppressing fires and keeping them in check before they made much progress and caused heavy damage. I cannot speak too highly of the manner in which the State Militia and regulars took hold of the work in places where I came in contact with them as the forces co-operated in places, and worked almost side by side. The federal forest service gave us a great deal of help in many cases. The work was in places on the exchange system, that we might aid one another to keep the expense down to its lowest cost. Efforts were made to have the lumber companies take some interest in this work, but little was accomplished, except in a few cases, and then it was in a very small degree; only one company responded to take full action in Flathead County, while in Lincoln County there was unity and the feeling that they must respond by work and money, if needed, to suppress fires. Every effort was made to make each fire warden an active representative of the State Forest Service, that as much service might be rendered to suppress fires and post fire notices



during the season as possible to get the best results for the compensation.

Twelve hundred and sixty-five fires have been reported up to date from various districts. It is likely that many others occurred that were not reported, but statistics will not be furnished until the next season, when more grounds can be examined. According to the best information that can be obtained at this time, 65 per cent originated from railroad engines; 35 per cent originated in various ways, which is quite common in this State at this time, viz: brush burning, lighting, campers, prospectors and a few incendiary. It is probable that at least one-half of the forest fires are preventable with reasonable precautions. There is altogether too much indifference, and the enforcement of the fire laws in some districts fails to receive the public support that they should. The prevention, if possible, or the prompt suppression, at any rate, of forest fires, is absolutely essential for this improvement of fire conditions, and must be the first step in that direction. It is just as much the duty of the State to provide fire protection for the forests as it is of the city to maintain fire departments for the protection of the city property. A fire on one man's strip of timber endangers the property of his neighbors; thereby becomes a question of public concern. The railroads are responsible for 65 per cent of all forest fires that occur. This is a serious question and demands additional legislation.

The most effective method of fire control where the railroads traverses forest lands, is the construction of fire lines and the employment of fire patrol during the fire season. Experience where conditions are not unlike ours shows that fire lines 8 to 10 feet wide on either side of the track, cleared of all inflammable material and located parallel to the outside track, not less than 100 feet nor more than 200 feet from it, will check nearly all railroad fires. By burning this strip between the fire lines and the track once a year, additional protection is secured. The railroads could well afford to do this, as it would reduce the cost of damages now paid on account of fire to a minimum; and the owners of timber or forest adjoining the railroads would find it to their advantage to have these fire lines constructed on their own lands for the security from fire that it would give them.

### **State and Government Reserves.**

There are large forest areas in the mountains where, on account of the thin soil and frequency of fires the value of such lands to the State and Government is not alone represented in the timber that can be produced, although that is an important item, but it is of great value in conserving the water for the benefit of irrigation, power development and pure water for domestic purposes, and preventing the silting of streams, thereby aiding navigation, which is the cheapest method of carrying on inland commerce. Considering the benefits to be derived, it is a thing which should commend itself to the business sense of the people.

### **Taxation of Forest Land.**

There is at the present time a general demand for a revaluation of land throughout the State for the purpose of equalizing the burdens of taxation and for increasing the revenues. It is therefore an opportune time to consider this matter of adjusting forest taxation in an equitable manner. As timber becomes more scarce and advances in value, there is the tendency at each new assessment to greatly increase the valuation of forest land having thereon a good stand of timber. The present method is to assess forest land under the general property tax, making the assessment high where the timber is valuable and placing it low where timber has been cut off. There is in the operation of this system a tendency to cut off the timber before it reaches maturity to avoid the high rate of taxation. A premium is placed on forest destruction and a penalty on forest conservation. The plea for readjustment of taxation on forest land is based on the value of such lands for the public welfare in supplying timber, conservation of water, beneficial effects upon climate, etc. The growth of timber is slow, and under the present stumpage prices and rate of taxation there are comparatively few cases where the sale value of the crop equals the cost of growing it, if a fair rental for the land is considered. It is true that most of the forests are on lands that could not be used for anything else, but it is not fair to expect the land owner to produce timber which is a public necessity, the use of which is only less universal than food crops, at a financial loss.

Increasing prices and better forest management are relieving this situation to some extent, but the most effective, as well

as the most equitable way, is through a change or modification of present tax laws.

There has not been, up to this time, very heavy burdens placed upon forest land, not because the law discriminated in its favor, for it does not, but because in most cases the assessors, in their discretion, recognized that the forest lands were the less valuable and therefore not to be assessed at the same rate as cultivated land.\* If there was the assurance that this would continue, there would not be the same reason for raising the question at this time. On the contrary, there is every reason to believe that the rate of assessment will be increased on the forest land, even more than on farm lands. The rule will not only apply to this state, but as in the middle West, where timber stumpage has raised since the shortage has become more fully known than here.

### Recommendations.

The Board of Forestry, whose duty it is to assist in the care and protection of the forest land of the State, finds a broad field of usefulness. In order to perform its full duty in an efficient manner, there is need of a liberal appropriation. The immediate needs are for current expenses, which, with the legitimate expansion of the work, are constantly growing; for improvement work in field and office. From charts and maps of each timbered country of the State, which are not now on hand, much valuable data can be obtained in this way at a glance, not only for reference but for exact knowledge of all State lands as to the location of railroads and streams. A larger field force to estimate timber and get the general knowledge of timber areas of the State, as well as to get information regarding the large watersheds that play such an important part in this great work.

Last season's operation of the forest fire laws demonstrated the need of certain changes to increase the efficiency of the forest fire wardens' services and to insure greater fire protection. The changes recommended are partly in the nature of amendments and partly as new legislation, and are as follows:

The State should be divided into forest fire districts, each district to be represented by one District Fire Warden, who shall hold office at the pleasure of the Governor or State Forester. Each District Forest Fire Warden shall have the power to appoint a deputy fire warden on the recommendation of the

State Forester and the community which he represents, and he shall act only during the absence of the District Fire Warden. They shall serve during the term that may be prescribed by law and shall be compensated by the State, at so much per month and actual expenses while so serving; giving all fire wardens power of arrest without warrant in case of detected violation of the forest laws, and the authority to summon able-bodied men, to require the use of teams and tools in extinguishing forest fires.

There should be a heavy penalty for tearing down and defacing forest warning notices. The railroads in the State should be required to construct and maintain on each side of their right-of-way, suitable fire lines to prevent the spread of fires, when such rights-of-way traverse forest and grass lands.

### **Fire Preventatives.**

Brush disposal and slash burning during the extreme dry season should be well taken under consideration. There should be an open and closed season. It should be unlawful for any person or persons to set on fire or cause to be set on fire, any slashing, chopping, woodland or brush land, railroad ties or other inflammable material, either their own or the property of another, without written or printed permission from the State Forester or the District Fire Warden and a compliance with the terms thereof. Permits to burn may be issued by any District Fire Warden and shall contain such restrictions as to time of burning and precaution to be taken as may be fixed by the State Forester, or left by him to the discretion of the District Fire Warden. Any District Fire Warden shall have the right to refuse, revoke or postpone permits when it is clearly necessary for public safety. Any permit obtained through wilful misrepresentation shall be invalid and give no exemption from liability of any kind.

In times and localities of unusual fire danger, the Governor, with the advice of the State Forester, may suspend any or all permits or privileges during all seasons of the year.

### **Co-operative Work.**

The best protection to our timber can only be attained where co-operation prevails between National and State government and the private owner, especially in such districts where the timber holdings are mixed and the interest mutual.



This has the tendency to reduce the cost of protection to the minimum price.

I have found upon personal investigation through the various western counties that no district was exempt from forest fires last season. But owing to a small field force at work a very small area has been covered, as all the State lands are scattered over the six western counties, yet, I must say, from a general view, that the percentage of fire-killed timber is much smaller than was at first figured. The heaviest loss was on the North Fork of the Flathead River, where a heavy crown fire took place August 20th. The loss in this district alone was 14,024,000 B. F.

Next in proportion was on the Middle Fork of the Stillwater River, where the loss was 8,475,000 B. F. These two fires aggregated 22,499,000 B. F., and will make the bulk of all the fire-killed timber on State land in the northwestern part of the State.

There are other districts with small percentages of timber killed, but they are more accessible to streams, where, perhaps, if market conditions warrant purchases, there will be little trouble to sell. Yet, on a forced sale and but little competition, the State is at the mercy of those who dictate prices here, as only one or two companies can handle this timber to any advantage.

I regret that I cannot give a more comprehensive report at this time, dealing more with forest productions and their uses, but lack of time since my occupancy of the office has kept me in the field on detail work connected with the land office and the fire service since last July, when fires broke out, which taxed all my time and energy.

State Forest Land under control by State Board of Land Commissioners. 392,000 acres, equal to  $612\frac{1}{2}$  sections, or 17 townships; if placed in one square block would represent an area  $25\frac{1}{2}$  miles square. Conservative estimate. 1,960,000,000 B. F. Valued by State Law at \$300 per 1,000. \$5,880,000.00.

Work was accomplished by the Forestry Office, 1910, as follows:

**Flathead Reservation—**

Indemnity selections appraised .....	9,022.70 acres
Regular school sections appraised (16 and 36) .	24,044.86 acres
Regular school sections classified as timber land .....	14,547.47 acres
Total selected, appraised and classified.....	47,615.03 acres

**Timber Trespass.**

Discovered seven, three of which are now under investigation; four have been scaled and valuation made, aggregating 506,890 B. F., value \$2,005.64.

Through the forest districts of the State, 265 Volunteer Fire Wardens were appointed; 153 qualified and one was disqualified for neglect of duty.

About 800 letters were written in connection with the office, and about 35 telegraph dispatches were sent and answered.

Detail work from State Land Office also was handled to some extent.

**Financial Statement.**

**Expense Account—**

11 Months' salary .....	\$2,270.85
11 months' office, field and travel .....	1,053.20
Total .....	\$3,324.14

**Reimbursements—**

James Harbert, livery .....	\$5.00
Mileage, two lawsuits, 1,448 miles at 10c per mile .....	144.80
	\$149.80
Cost of fire service, 1910 .....	\$15,828.60

Few accounts and claims still unsettled.

Invoice camping outfit, tools and horses.....\$385.00

Respectfully submitted,

CHAS. W. JUNGBERG.

State Forester.





